WHAT IS CLAIMED IS:

1. A circuit for controlling a laser diode, comprising:

a bias circuit coupled to said laser diode for setting a DC operating point of said laser diode;

an amplifier having an output coupled to said laser diode for superimposing an AC signal on said DC operating point, wherein said amplifier has a control input for controlling a maximum output swing of said amplifier;

a control circuit coupled to said control input for setting said maximum output swing; and

a programmable memory coupled to said control circuit for storing values for controlling said maximum output swing.

2. The circuit of Claim 1, wherein said programmable memory is a one-time-programmable memory.

3. The circuit of Claim 1, wherein said programmable memory is an electrically-erasable memory.

4. The circuit of Claim 1, wherein said control circuit comprises a current source coupled to said programmable memory and having an output coupled to said control input of said amplifier for providing control of said maximum output swing in response to settings within said programmable memory.

5. The circuit of Claim 4, wherein said programmable memory is a analog memory, and wherein said current source comprises a voltage controlled current source having an input coupled to an output of said analog memory and an output coupled to said amplifier for controlling said maximum output swing.

6. The circuit of Claim 4, wherein said current source comprises a digitally programmable current source.

7. The circuit of Claim 6, wherein said digitally programmable current source comprises:

a plurality of current sources having a fixed current scaled in sequence by powers of two; and

a plurality of switches, wherein each of said plurality of switches is coupled to an associated one of said plurality of current sources, whereby a digital signal set coupled to control inputs of said plurality of switches sets a current level determined by a binary value of said digital signal set.

8. The circuit of Claim 7, wherein said digitally programmable current source further comprises a shift register having a plurality of bit storage latches, wherein each of said plurality of latches is coupled to an associated one of said plurality of switches, whereby data from said programmable memory may be shifted in to control said plurality of switches to set said current level.

9. A circuit for controlling a laser diode, comprising:

a bias circuit coupled to said laser diode for setting a DC operating point of said laser diode;

a modulation signal source coupled to said laser diode for superimposing an AC signal on said DC operating point;

a programmable memory for storing values for controlling parameters of said circuit; and

means for controlling a maximum swing of said modulation signal source in conformity with said values.

10. A method for operating a laser diode, comprising:

retrieving values stored in a programmable memory;

biasing said laser diode at a DC operating point;

modulating an intensity of said laser diode with a modulating signal; and

controlling a maximum swing of said modulating signal in conformity with said values.

11. The method of Claim 9, wherein said modulating is performed via an amplifier having settable maximum and minimum output levels, and wherein said controlling sets said maximum and minimum output levels.

12. A circuit for controlling a laser diode, comprising:

a bias circuit coupled to said laser diode for setting a DC operating point of said laser diode;

an amplifier having an output coupled to said laser diode for superimposing an AC signal on said DC operating point;

a control circuit for coupling said output of said amplifier to said laser diode, said circuit having an adjustable response whereby a transition time of said AC signal may be adjusted; and

a programmable memory coupled to said control circuit for setting said transition time.

13. The circuit of Claim 12, wherein said control circuit is a programmable capacitor array for setting a coupling capacitance coupling said output of said amplifier to said laser diode.

14. The circuit of Claim 13, wherein said programmable capacitor array comprises:

a plurality of capacitors having a capacitance scaled in sequence by powers of two; and

a plurality of switches, wherein each of said plurality of switches is coupled to an associated one of said plurality of capacitors, whereby a digital signal set coupled to control inputs of said plurality of switches sets a capacitance determined by a binary value of said digital signal set.

15. The circuit of Claim 14, wherein said programmable capacitor array further comprises a shift register having a plurality of bit storage latches, wherein each of said plurality of latches is coupled to an associated one of said plurality of switches, whereby data from said programmable memory may be shifted in to control said plurality of switches to set said capacitance.

16. The circuit of Claim 13, wherein said control circuit comprises a second amplifier coupled to said programmable capacitor array, whereby a response of said second amplifier is adjustable.

17. The circuit of Claim 12, wherein said control circuit comprises a second amplifier coupled to said programmable memory, whereby a response of said second amplifier is adjustable.

18. The circuit of Claim 12, wherein said amplifier has a control input for controlling maximum output swing of said amplifier, and wherein said programmable memory is further coupled to said control input for setting said maximum output swing.

19. The circuit of Claim 18, further comprising a second control circuit coupled to said programmable memory and having an output coupled to said control input of said amplifier for providing control of said maximum output swing in response to settings within said programmable memory.

20. The circuit of Claim 19, wherein said second control circuit comprises a programmable current source.

21. The circuit of Claim 20, wherein said programmable current source comprises:

a plurality of current sources having a fixed current scaled in sequence by powers of two; and

a plurality of switches, wherein each of said plurality of switches is coupled to an associated one of said plurality of current sources, whereby a digital signal set coupled to control inputs of said plurality of switches sets a current level determined by a binary value of said digital signal set.

22. The circuit of Claim 21, further comprising a shift register having a plurality of bit storage latches, wherein each of said plurality of latches is coupled to an associated one of said plurality of switches, whereby data from said programmable memory may be shifted in to control said plurality of switches to set said current level.

23. A circuit for controlling a laser diode, comprising:

a bias circuit coupled to said laser diode for setting a DC operating point of said laser diode;

a modulation signal source coupled to said laser diode for superimposing an AC signal on said DC operating point;

a programmable memory for storing values for controlling parameters of said circuit; and

means for controlling a transition time of said modulation signal source in conformity with said values.

24. A method for operating a laser diode, comprising:

retrieving values stored in a programmable memory;

biasing said laser diode at a DC operating point;

modulating an intensity of said laser diode with a modulating signal; and

adjusting a transition time of said modulating signal in conformity with said values.

25. The method of Claim 24, wherein said modulating signal is supplied to said laser diode through a capacitor, and wherein said adjusting sets a capacitance of said capacitor.

26. The method of Claim 24, further comprising controlling a maximum swing of said modulating signal in conformity with one of said values.

27. The method of Claim 26, wherein said modulating is performed via an amplifier having settable maximum output signal swing, and wherein said controlling further sets said maximum output signal swing.

28. An integrated circuit for controlling a laser diode, wherein said integrated circuit comprises:

a bias control circuit for controlling a DC operating point of said laser diode;

a swing control circuit for controlling the maximum amplitude of an AC modulating signal coupled to said laser diode; and

a programmable memory for supplying programmed values to said bias control circuit and said swing control circuit whereby said maximum amplitude and said DC operating point are set in conformity with said programmed values.

29. An integrated circuit for controlling a laser diode, wherein said integrated circuit comprises:

a bias control circuit for controlling a DC operating point of said laser diode;

a response control circuit for controlling the transition time of an AC modulating signal coupled to said laser diode; and

a programmable memory for supplying programmed values to said bias control circuit and said gain control circuit whereby said transition time and said DC operating point are set in conformity with said programmed values.

30. The integrated circuit of Claim 29, further comprising a swing control circuit for controlling a maximum swing of said AC modulating signal, and wherein said programmable memory is further used for supplying programmed values to said gain control circuit whereby said maximum swing of said modulating signal and said DC operating point are set in conformity with said programmed values.

31. The integrated circuit of Claim 30, further comprising an under-voltage lockout circuit for preventing operation of said bias control circuit unless a voltage supplied to said integrated circuit exceeds a predetermined level.

32. The integrated circuit of Claim 30, wherein said bias control circuit comprises a bandgap reference for supplying a reference voltage for generating a laser bias voltage, and wherein said undervoltage lockout circuit disconnects an output of said bandgap reference unless a voltage from said bias control circuit exceeds a predetermined level.

33. The integrated circuit of Claim 30, further comprising a power on reset circuit for preventing operation of said bias control circuit until an initialization time has elapsed.

34. The integrated circuit of Claim 33, wherein said bias control circuit comprises a bandgap reference for supplying a reference voltage for generating a laser bias voltage, and wherein said power on reset circuit disconnects an output of said bandgap reference from said bias control circuit until said initialization time has elapsed.

35. The integrated circuit of Claim 34, further comprising an under-voltage lockout circuit for preventing operation of said bias control circuit until a voltage supplied to said integrated circuit has reached a predetermined level, and wherein a start of said initialization time is determined by the end of said under-voltage lockout circuit preventing operation.

36. The integrated circuit of Claim 35, further comprising:

a logic AND gate for combining said output of said power on reset circuit and an output of said under-voltage lockout circuit; and

a buffer for coupling said output of said bandgap reference to said bias control circuit, said buffer having a control input for disabling said buffer, wherein said control input is coupled to an output of said logic AND gate for disconnecting said bias control circuit until a voltage supplied to said integrated circuit has reached a predetermined level and until said initialization time has elapsed.

37. A circuit for controlling a laser diode, comprising:

a bias circuit coupled to said laser diode for setting a DC operating point of said laser diode, said bias circuit having a power supply input coupled to a power supply rail;

a voltage reference coupled to said power supply rail for biasing a monitor diode optically coupled to said laser diode, such that variations in said power supply rail are not reflected in the bias imposed on said monitor diode, and wherein said voltage reference is further coupled to said bias circuit; and

a programmable memory coupled to said bias circuit for setting said DC operating point.

38. The circuit of Claim 37, wherein said programmable memory is a one-time-programmable memory.

39. The circuit of Claim 37, wherein said programmable memory is an electrically erasable memory.

40. The circuit of Claim 37, wherein further comprising a bias resistor for coupling an output of said voltage reference to said monitor diode, whereby a gain of said bias circuit can be set by the value of said bias resistor.

41. The circuit of Claim 37, wherein said bias circuit includes a programmable resistor array, wherein a resistance value is programmed via values stored within said programmable memory.

42. The circuit of Claim 37, wherein said programmable memory is an analog memory and wherein said bias circuit further comprises a transistor having a gate coupled to an output of said analog memory for producing a resistance for controlling said bias circuit in conformity with values stored within said analog memory.

43. The circuit of Claim 42, wherein said bias circuit further comprises a voltage controlled current source coupled to said monitor diode including a resistor having thermal resistance variation characteristics matched to thermal resistance variation characteristics of said programmable resistor array, whereby thermal variations in said resistor and said resistor array are cancelled.

44. The circuit of Claim 37, further comprising:

an under-voltage lockout circuit; and

a power-on reset circuit, wherein said under-voltage lockout circuit and said power-on reset circuit are coupled to said voltage reference for disabling said voltage reference until a voltage supplied to said integrated circuit has reached a predetermined level and an initialization time has elapsed.

45. A circuit for controlling a laser diode, comprising:

a bias circuit coupled to said laser diode for setting a DC operating point of said laser diode, said bias circuit having a power supply input coupled to a power supply rail;

a voltage reference coupled to said power supply rail for biasing a monitor diode optically coupled to said laser diode, such that variations in said power supply rail are not reflected in the bias imposed on said monitor diode, and wherein said voltage reference is further coupled to said bias circuit; and

a programmable memory for storing values for controlling parameters of said circuit; and

means for controlling said DC operating point in conformity with said values.

46. An integrated circuit having electrical connections for controlling a laser diode, said integrated circuit comprising:

a bias circuit coupled to said laser diode for setting a DC operating point of said laser diode, said bias circuit having a power supply input coupled to a first one of said electrical connections;

a voltage reference coupled to said power supply rail and having an output coupled to a second one of electrical connections for biasing a monitor diode optically coupled to said laser diode, such that variations in said power supply rail are not reflected in the bias imposed on said monitor diode, and wherein said voltage reference is further coupled to said bias circuit;

a programmable memory coupled to said bias circuit for setting said DC operating point.

47. The integrated circuit of Claim 46, further comprising:

a control circuit coupled to a third one of said electrical connections for coupling an output of an external modulation amplifier for supplying an AC modulating signal to said laser diode through a fourth one of said electrical connections, said control circuit having an adjustable response whereby a transition time of said AC signal may be adjusted; and

a programmable memory coupled to said control circuit for setting said transition time.

48. The integrated circuit of Claim 47, wherein said external modulation amplifier further includes a control input for controlling a maximum output swing of said amplifier, and wherein said integrated circuit further comprises:

a control circuit coupled to said control input through a fifth one of said electrical connections; and

a programmable memory coupled to said control circuit for setting said maximum output swing.

49. The integrated circuit of Claim 46, further comprising an under-voltage lockout circuit for disabling operation of said bias circuit when a voltage of said power supply input is below a predetermined level, and wherein said under-voltage lockout circuit further disables said voltage reference output on said second one of said electrical connections to provide external circuits with under-voltage lockout protection.

50. The integrated circuit of Claim 46, further comprising a power-on reset circuit for disabling operation of said bias circuit before an initialization time has elapsed, and wherein said power-on reset circuit further disables said voltage reference output on said second one of said electrical connections to provide external circuits with power-on reset timing.